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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/018,979

12/18/2001

Herbert Schumacher

(E) 1734 US

5959

7590

06/17/2004

M. Robert Kestenbaum
11011 Bermuda Dunes NE
Albuquerque, NM 87111

EXAMINER

MCCLOUD, RENATA D

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,979	SCHUMACHER ET AL.	
	Examiner	Art Unit	
	Renata McCloud	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-46, 49 and 51-62 is/are rejected.
- 7) ☒ Claim(s) 47, 48, 50 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the amendment filed 22 April 2004, the following has occurred:

- (a) Claims 23, 27-29, 38, 48, 53, and 54 have been amended.
- (b) The 35 U.S.C. 112 rejections have been withdrawn by the examiner due to changes made by the applicant.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

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- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claim 23 is rejected under 35 U.S.C. 102(a) as being anticipated by Meusen (US 6,178,745).

Claim 23: a plurality of mufflers (Fig. 1: 12), and an actuator (Fig. 1: 9) for changing a flow resistance of exhaust gases flowing through the mufflers (12) to change the damping characteristic of the muffler device, wherein the actuator (Fig. 1:9; Fig. 2:29) is provided in a pipe bifurcation comprising an inlet (Fig. 1: 2; Fig. 2:22) and a plurality of outlets (Fig. 1: 8,9; Fig. 2: out from 24, 25), each outlet being connected by a connecting pipe to one of the mufflers (12), and a

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throughflow cross section of the inlet being variable by means of the actuator (Fig. 1: 9; Fig. 2:29).

Claim 24: two mufflers (Fig. 1: 12) and two outlets (Fig. 1:8,9).

Claims 25 and 51: the mufflers are of like construction (Fig. 1: 12).

Claims 26 and 52: the connecting pipes (Fig. 1:5,4) have an equal flow cross-section.

Claims 27 and 53: the outlets (24,25) are symmetrical with respect to the inlet (26) and the actuator (29) extends along and symmetrically of the axial axis of the inlet (26).

Claim 28 and 54: the actuator (9) is united with the pipe (3).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 34 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meusen as applied to claims 23 and 24 above in view of Fallon (U.S. Patent 4,913,260).

Claims 34 and 59: Meusen teaches the limitations of claims 23 and 24.

Referring to claims 34 and 59, Meusen teaches the actuator comprising a control valve (Fig. 1:10). Meusen does not teach the control valve comprising a valve

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plunger and a closure member comprising a valve disk selected from a flattened, conical or hemispherical valve disk or valve member. Fallon teaches the actuator comprising a control valve (Fig. 5:36) comprising a valve plunger (Fig. 5:38) and a closure member comprising a valve disk selected from a flattened, conical or hemispherical valve disk or valve member (Fig. 5:26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Meusen to include the teachings of

Fallon. The advantage of this would be means for a driver to control the bypass valve and the amount of bypass gas flow, thereby providing means to vary the attenuation of gas flow sound.

7. Claims 30,31, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meusen as applied to claim 23 above, and further in view of Olszok et al (U.S. Patent 5,821,474).

Claims 30 and 56: Meusen teaches the limitations of claim 23. Referring to claims 30 and 56, Meusen does not teach the actuator comprising a closure member that engages with the inlet and has on its periphery at least one indentation equally distributed on the periphery. Olszok et al teach an actuator (Fig. 2:10) comprising a closure member (e.g. Fig. 2:5) that engages with the inlet (Fig. 1:1) and has on its periphery at least one indentation equally distributed on the periphery (e.g. Fig. 2:14.2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Meusen to include the teachings of Olszok. The advantage of this would be means for reducing overpressure inside the motor thereby reducing damage to muffler components including springs.

Claim 31: Meusen and Olszok et al teach the limitations of claim 30.

Referring to claim 31, Olszok et al teach two indentations (Fig. 2:14.2,14.3).

Claim 49: Meusen and Olszok et al teach the limitations of claim 24.

Referring to claim 49, Olszok et al teach the actuator (10) is secured to a flattened middle of a diaphragm on a pressure side of a pressure container (Fig. 7: 3.1).

8. Claims 29, 35-37,40, 55,60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meusen as applied to claim 23 above, in view of Takadoro et al (US 4,926,636).

Claims 29 and 55: Meusen teaches the limitations of claims 24 and 23.

Referring to claims 29 and 55, Meusen does not teach the actuator is biased by a spring in a direction of a closing position that closes the inlet, and is movable when a gas pressure of flowing exhaust gas is increased before the inlet, against a force of the spring into an open position opening the inlet. Takadoro et al teach an actuator is biased by a spring (Fig. 1:26b) in a direction of a closing position that closes an inlet, and is movable when a gas pressure of flowing exhaust gas is increased before the inlet, against a force of the spring into an open position

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opening the inlet (Col. 6:17-22). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Meusen to use a spring as taught by Takadoro et al. The advantage of this would be

Claims 35 and 60: Meusen and Takadoro et al teach the limitations of claims 29 and 55. Referring to claims 35 and 60, Takadoro et al teach the actuator comprises a passive control element and automatically reaches its opening position due to a force of a counter pressure of flowing exhaust (Col. 6:5-22).

Claims 36 and 61: Meusen and Takadoro et al teach the limitations of claims 29 and 55. Referring to claims 36 and 61, Takadoro et al teach the force of the counter-pressure is exerted directly on a cross-sectional surface exposed to exhaust gas flow of the closure member of the actuator against a force of a spring (Col. 6:13-22).

Claim 37: Meusen and Takadoro et al teach the limitations of claims 29 and 55. Referring to claim 37, Takadoro et al teach the force of the counter-pressure is exerted on a separate actuating element of the actuator to move the actuator into an open position (Fig. 1:71).

Claims 40 and 62: Meusen and Takadoro et al teach the limitations of claims 23 and 24. Referring to claims 40 and 62, Takadoro et al teach the actuator comprises an active control element (e.g. Fig. 1:16) and a separate actuating element (e.g. Fig. 1:71) that is driven by control electronics (Fig. 1:61) of a motor vehicle engine.

9. Claims 38, 39 and 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meusen and Takadoro et al as applied to claim above, and further in view of Olszok et al (US 5,821,474.

Claim 38: Meusen and Tadokoro et al teach the limitations of claim 37. Referring to claim 38, Takadoro et al teach, the actuating element comprises a pressure container (Fig. 1:26a), a pressure side of a diaphragm in the pressure container is connected via a pressure duct to the counter-pressure before the inlet of the pipe branch (Col. 6:5-13), and a spring is arranged in the pressure container (Fig. 1:26a). They do not teach a spring arranged in the pressure container on a low-pressure side of the diaphragm, and a middle of the diaphragm is connected to the actuator. Olszok et al teach the actuating element (Fig. 2:10) comprises a pressure container (e.g. Fig. 2:14.4), a pressure side of a diaphragm (Fig. 2:11.3) in the pressure container is connected via a pressure duct (Fig. 2:15.4) to the counter-pressure before the inlet of the pipe branch, and a spring is arranged in the pressure container on a low pressure side of the diaphragm (Fig.2: 12.3), and a middle of the diaphragm is connected to the actuator (Fig. 2:11.3).

Claim 41: Meusen and Tadokoro et al teach the limitations of claim 40. Referring to claim 41, they do not teach the actuating element comprising a low pressure container, a low pressure side of a diaphragm in the low pressure container being connected via a control duct to one of a vacuum pump and an

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intake pipe of the motor vehicle engine, a middle of the diaphragm being connected to the actuator. Olszok teaches the actuating element comprises a low pressure container (Fig. 2:14.4), a low pressure side of a diaphragm (Fig. 2:11.3) in the low pressure container being connected via a control duct to one of a vacuum pump and an intake pipe of the motor vehicle engine (Col. 2:5-10), a middle of the diaphragm being connected to the actuator (Fig. 2:11.3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Meusen and Tadokoro et al to include the teachings of Olszok. The advantage of this would be means for reducing overpressure inside the motor thereby reducing damage to muffler components including springs.

Claims 39 and 42: Meusen, Tadokoro et al and Olszok et al teach the limitations of claims 38 and 40. Referring to claims 39 42, Olszok et al teach the middle of the diaphragm is connected to a free end of a valve plunger (Fig. 2:13) of a disk valve (Fig. 2:5.1)

Claim 43: Meusen, Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 43, Olszok et al teach a pressure side of the diaphragm of the low pressure container comprises a housing vent bore (Fig. 2:15.4) that provides atmospheric pressure (Col. 3:63-67).

Claim 44: Meusen, Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 44, Olszok et al teach a pressure the pressure side

of the diaphragm of the low-pressure container is directly exposed to the atmosphere (Fig. 2:15.4).

Claim 45: Meusen, Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 45, Olszok et al teach a spring is arranged on the low-pressure side of the diaphragm in the low-pressure container (Fig. 2:12.3).

10. Claim 46 rejected under 35 U.S.C. 103(a) as being unpatentable over Meusen, Tadokoro et al and Olszok et al as applied to claim 41 above, in view of Kao (U.S. Patent 4,866,933).

Claim 46: Meusen, Tadokoro et al and Olszok et al teach the limitations of claim 41. Referring to claim 46, they do not teach an electromagnetically operable on/off valve or a steplessly controllable pressure regulating valve is arranged in the control duct, and the on/off valve or the steplessly controllable pressure regulating valve is driven by the control electronics of the motor vehicle engine. Kao teaches an electromagnetically operable on/off valve (Fig. 3:60) arranged in a control duct (Fig. 3:60), and the on/off valve is driven by the control electronics of the motor vehicle engine (Col. 1:45-55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Meusen, Tadokoro et al and Olszok et al to include an electromagnetically operable on/off valve as taught by Kao. The advantage of this would be an exhaust silencer that automatically responds to the rpm of an engine.

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11. Claims 32 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meusen applied to claim 23 above, in view of G.A. Kingsley (U.S. Patent 2,072,372).

Claims 32 and 57: Meusen teaches the limitations of claim 23. Referring to claims 32 and 57, they do not teach the actuator comprises a closure member that engages with the inlet, and comprises axial passages that are distributed over the cross section of the closure member. G.A. Kingsley teaches the actuator comprises a closure member (18) that engages with the inlet (4), and comprises axial passages that are distributed over the cross section of the closure member (7-10).

Claims 33 and 58: Meusen teaches the limitations of claim 23. Referring to claims 33 and 58, they do not teach the actuator comprises a closure member that engages with the inlet and has a diameter such that in a closed position a peripheral gap to an internal diameter of the inlet remains free. G.A. Kingsley teaches the actuator comprises a closure member (18) that engages with the inlet (4) and has a diameter such that in a closed position a peripheral gap to an internal diameter of the inlet remains free (Fig. 1: free area around 16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the muffler taught by Meusen to include the teachings of G.A. Kingsley. The advantage of this would be an exhaust silencer that prevents accumulation of backpressure.

Allowabl Subject Matter

12. Claims 47, 48, and 50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior Art of Record fails to teach an actuator extending along and symmetrically about the axial axis of an inlet; a first connection connected to a second connection in a first valve position, and the second connection connected to the third connection in a second valve position; or a plunger guided between two outlets outward as far as a spring housing.

Response to Arguments

13. Applicant's arguments with respect to claims 23-62 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are: Hirota et al (US 5,974,791), Itou (US 6,418,900), Ausiello et al (US 5,479,885), Park (US 5,822,984), Hwang (US 6,633,646), Winberg et al (US 4,773,215), Goerlich (US 4,936,093), Boegner et al (US 5,910,097), Wantanabe et al (US 6,253,547), Tanaka et al (US 5,634,333), Baines (US 5,113,652), and Deeba et al (US 6,105,365).

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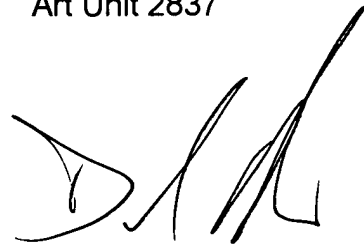
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 8 am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2800 ext. 4. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RDM

Renata McCloud
Examiner
Art Unit 2837

A handwritten signature in black ink, appearing to be 'DM', with a long, sweeping horizontal stroke extending to the right.

DAVID MARTIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800